Problem solving and practice: C++ Assignment:4

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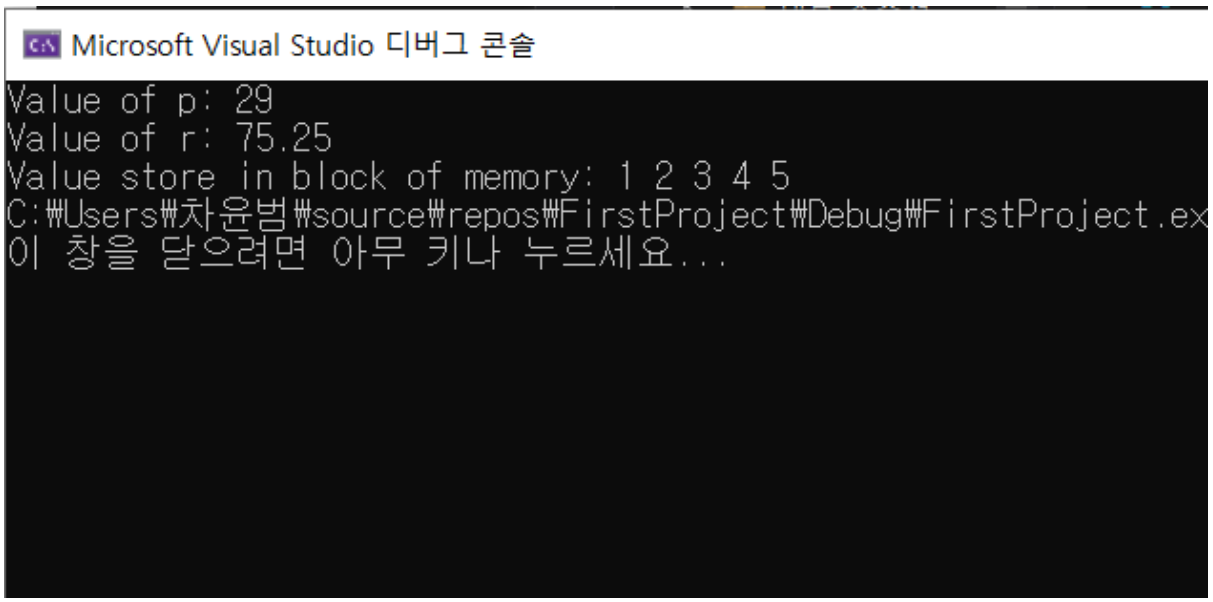
Problem1

```
#pragma warning(disable : 4996)
#include <iostream>
#include <string.h>
#include <cstring>
#include <stdlib.h>
#include <array>
using namespace std;

int main()
{
    // Pointer initialization to null
    int* p = NULL;

    // Request memory for the variable
    // using new operator
    p = new int[100];
    if (!p)
        cout << "allocation of memory failed\n";
    else
    {
        // Store value at allocated address
        *p = 29;
        cout << "Value of p: " << *p << endl;
    }

    // Request block of memory
    // using new operator
    float* r = new float(75.25);

    cout << "Value of r: " << *r << endl;

    // Request block of memory of size n
```

```
    int n = 5;
    int* q = new int[n];

    if (!q)
        cout << "allocation of memory failed\n";
    else
    {
        for (int i = 0; i < n; i++)
            q[i] = i + 1;

        cout << "Value store in block of memory: ";
        for (int i = 0; i < n; i++)
            cout << q[i] << " ";
    }

    // freed the allocated memory
    delete p;
    delete r;

    // freed the block of allocated memory
    delete[] q;

    return 0;
}
```

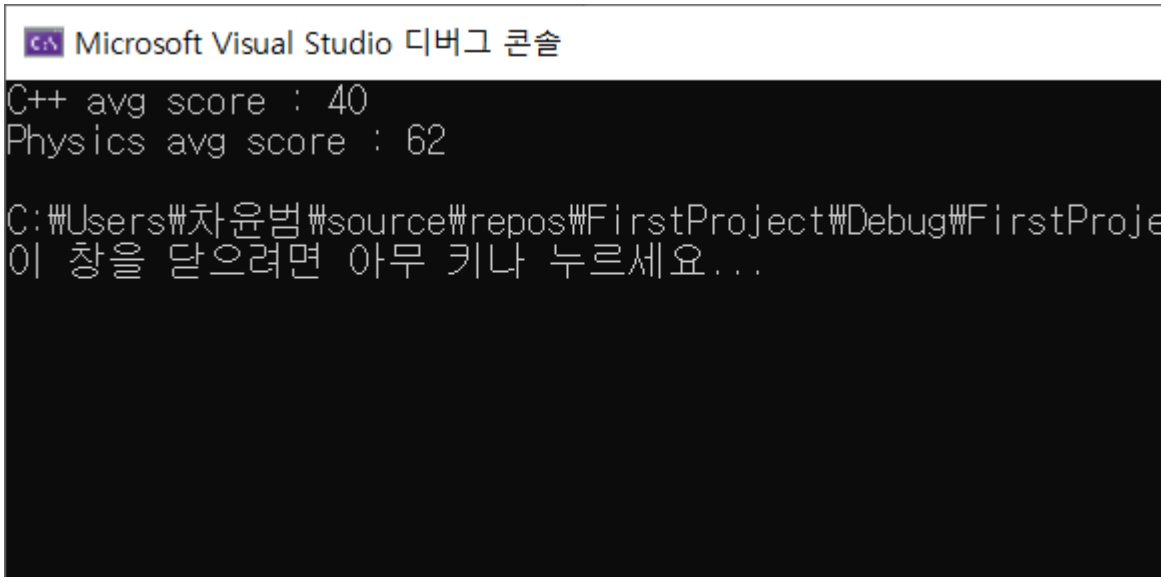
Problem1 output screen



Problem2

```
#pragma warning(disable : 4996)
#include <iostream>
#include <string.h>
#include <cstring>
#include <stdlib.h>
#include <array>

using namespace std;

int main() {
    //Declare a 2 dimensional array and initialize it
    std::array<std::array<int, 2>, 3> student = { 20, 100, 70,36,30,
50 };

    //score, average
    int csum = 0, psum = 0;
    double cavg = 0, pavg = 0;

    //c++ score Cumulative
    for (int i = 0; i < 3; i++) {
        csum += student[i][0];
    }
    //Compute c++ score average
    cavg = (double)csum / 3.0;

    //physics score Cumulative
    for (int j = 0; j < 3; j++) {
        psum += student[j][1];
    }
    //Compute physics score average
    pavg = (double)psum / 3.0;

    //output
    cout << "C++ avg score : " << cavg << endl;
    cout << "Physics avg score : " << pavg << endl;

    return 0;
}
```

Problem 2 output screen



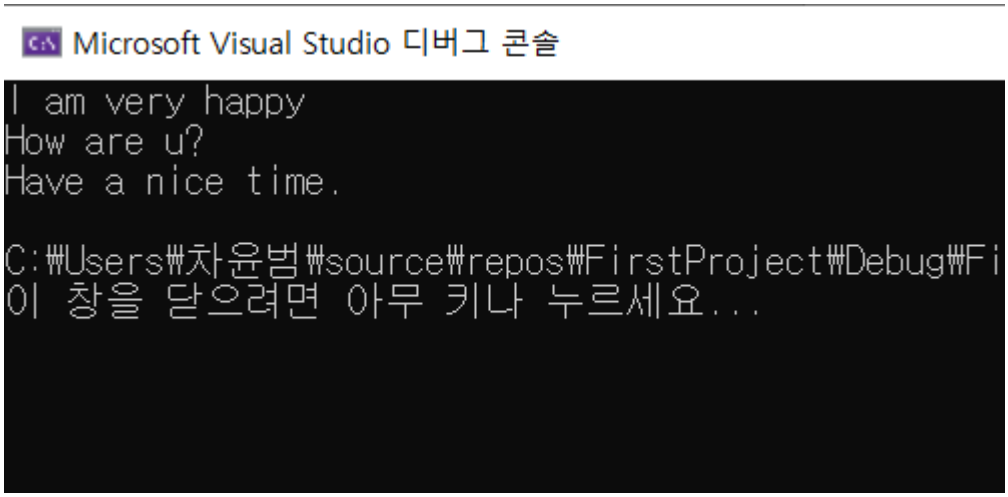
Problem3

```
#pragma warning(disable : 4996)
#include <iostream>
#include <fstream>
#include <string.h>
#include <cstring>
#include <stdlib.h>
#include <string>
#include <array>

using namespace std;

int main(){
    //open file for writing
    //creating object
    ifstream inf;
    //open() is a predefined function
    inf.open("D:\\test\\original.txt");
    //check the file
    if (!inf) {
        cout << "Error, no such file exists" << endl;
    }

    // Declare string to Save
    string str;

    //constructor
    ofstream onf;
    //open() is a predefined function
    onf.open("D:\\test\\record.txt");
    //check the file
    if (!onf) {
        cout << "Error, no such file exists" << endl;
    }

    // Receiveand save to the end of the string
    while (getline(inf, str)) {
```

```
        onf << str << "\n"; //write
        cout << str << endl;
    }

    //close()
    inf.close();
    onf.close();

    return 0;
}
```

Problem 3 output screen

Console output



File output